

## Construction Exit Pad (CEP)



### Practice Description

A construction exit pad is a stone base pad designed to provide a buffer area where mud and caked soil can be removed from the tires of construction vehicles to avoid transporting it onto public roads. This practice applies anywhere traffic will be leaving a construction site and moving directly onto a public road or street.

### Typical Components of the Practice

- Site Preparation
- Grading
- Stabilization with Geotextile Fabric (where needed to provide stability)
- Aggregate Placement
- Construction Verification

### Construction

Prior to start of construction, temporary gravel construction entrance/exit pads should be designed by a qualified design professional and plans and specifications should be available to field personnel.

### **Site Preparation**

Remove all vegetation and other unsuitable material from the foundation area.

### **Grading**

Grade and crown the area for positive drainage.

Utilize a diversion to direct any surface flow away from the construction exit pad.

Install pipe under the pad if needed to maintain drainage ditches along public roads.

Divert all construction exit pad runoff and drainage to a sediment trap or basin.

### **Stabilization**

If project specified, or if wet conditions or soft soils are anticipated, place non-woven geotextile fabric on the graded foundation prior to placing the aggregate to improve stability.

### **Aggregate Placement**

Place specified stone size to lines and grade shown on plans. Leave surface smooth and sloped for drainage.

### **Construction Verification**

Check all components during construction and installation to ensure that specifications are being met for the components.

## **Common Problems**

*Consult with a qualified design professional if any of the following occur:*

- Inadequate runoff control and sediment washes onto public road: install diversions or other runoff control measures.
- Ruts and muddy conditions develop as stone are pressed into soil; increase stone size or pad thickness, or add geotextile fabric.
- Pad too short for heavy construction traffic: consult design professional about extending pad to the necessary length.

## **Maintenance**

Remove large chunks of mud or caked soil from construction exit pad daily to minimize sediment buildup.

Inspect stone pad and sediment disposal area weekly and after storm events or heavy use.

Reshape pad as needed for drainage and runoff control.

Top-dress with clean specified stone as needed to maintain effectiveness of the practice.

Immediately remove mud or sediment tracked or washed onto public road.  
Repair any broken road pavement immediately.

Remove unneeded exit pad materials from areas where permanent vegetation will be established.

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## Land Grading (LG)



### Practice Description

Land grading is reshaping of the ground surface to provide suitable topography for buildings, facilities and other land uses, to control surface runoff, and to minimize soil erosion and sedimentation both during and after construction. This practice applies to sites where the existing topography must be modified to prepare for another land use, or where adapting proposed development to the existing landscape can reduce the erosion potential of the site and the cost of installing erosion and sediment control measures. In some instances other practices such as diversions or benches can be used to reduce the length of continuous slopes and reduce erosion potential.

### Typical Components of the Practice

- Scheduling
- Outlet
- Sediment Control
- Site Preparation
- Grading
- Erosion Control
- Construction Verification

## **Construction**

Prior to start of construction, the site grading plan should be designed by a qualified design professional. The grading plan should show disturbed areas, cuts, fills, and finished elevations for all graded areas. Plans and specifications should be referred to by field personnel throughout the construction process.

### ***Scheduling***

Grading activities should be scheduled to minimize the area disturbed.

### ***Outlet***

Runoff from disturbed areas should be controlled at the outlets with proper runoff conveyance practices, such as drop structures, riprap-lined swales, or rock outlets.

### ***Sediment Control***

Appropriate sediment control measures should be installed to minimize sediment delivery off-site until other measures can be installed to prevent erosion. The measures should be installed as specified and in the sequence shown in the design plan.

### ***Site Preparation***

Determine exact location of underground utilities.

Remove and stockpile topsoil (see Topsoiling practice).

Clear and grub areas by removing trees, vegetation, roots and other debris. Check fill to make sure it does not contain brush, rubbish, oversized rocks or other objectionable material.

### ***Grading***

Place fill in layers and compact as specified by the grading plan

Construct slope breaks as shown on the grading plan.

Keep diversions and other water conveyance measures free of sediment during all phases of development, including grading.

Install subsurface drains (see Subsurface Drains practice) in areas where seepage interferes with the grading operations, or where required to improve slope stability or soil bearing capacity.

The final trip over slopes using equipment with tracks should be made up-and-down the slopes to establish cleat marks on the contour (“tracking”).

### **Erosion Control**

Use temporary stabilization measures on graded areas when work is to be interrupted or delayed for 14 calendar days or longer. A shorter period may be appropriate in critical situations (for example, steep bare slopes close to the drainageway that discharges into sensitive waters).

Stabilize graded areas that have “final grading completed” within 10 working days. Use permanent vegetation or other appropriate stabilization measures. If grading is completed out of season for the desired vegetation, a temporary planting may be made first and the permanent planting made later during the recommended planting period.

### **Construction Verification**

Check all finished grades for conformance with grading plan and correct as necessary.

### **Common Problems**

*Consult with a qualified design professional if any of the following occur:*

- Variations in topography on-site indicate grading plan will be ineffective or unfeasible.
- Seepage is encountered during construction. It may be necessary to install drains.
- Subgrade is soft or has high organic content and can hinder proper compaction of fill. It may be necessary to undercut and replace unsuitable subgrade soil.
- Design specifications for sediment control measures, seed variety, seeding dates or other erosion control measures or materials cannot be met. Substitutions may be required. Unapproved substitutions could result in erosion and lead to failure of sediment and erosion control measures.

### **Maintenance**

Periodically check all graded areas and the related erosion and sediment control practices for damage by equipment and especially after heavy rainfalls for damage by runoff. Repair silt fences and other temporary sediment control measures. Clean sediment out of adjacent diversions and other structures as needed. Repair any failures that occur in surface stabilization measures such as plantings.

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## Topsoiling (TSG)



### Practice Description

Topsoiling is the removal of a desirable soil surface, referred to as topsoil, at a site prior to construction and using it on areas to be vegetated. Topsoiling a site usually improves the quality of the plant growth medium at the site and increases the likelihood of successful plant establishment and performance. This practice applies to sites that are to be disturbed by excavation, compaction or filling, and to other areas where the subsoil is unsuitable for plant growth.

### Typical Components of the Practice

- Scheduling
- Removal of Topsoil (Stripping)
- Stockpiling
- Temporary Erosion Control
- Spreading Topsoil
- Construction Verification

### Construction

Prior to start of construction, topsoiling should be planned by a qualified design professional and incorporated in the development plan. The grading plan should show disturbed areas and the stockpile area(s). Areas to receive topsoil after

grading should be included in the erosion and sediment control plan. Plans and specifications should be referred to throughout the construction process.

### ***Scheduling***

Stripping should be scheduled to precede or be done concurrently with land grading.

### ***Stripping***

Strip topsoil from areas that will be disturbed by excavation, filling or compaction by equipment. Locations and depths to remove the topsoil should be based on the design plan. In the absence of details in the plan, determine depth of stripping by taking soil cores at several locations within each area to be stripped and remove the friable and loamy surface (typically 4" to 6"). Stumps, roots, trash, noxious weeds, and soils containing toxic chemicals should be removed separately and disposed of according to locally accepted procedures.

### ***Stockpiling***

Stockpile topsoil at the site(s) identified in the design plan. In the absence of details in the plan locate the stockpile so that natural drainage is not obstructed. Avoid stockpiling on steep slopes. Side slopes of stockpiles should not exceed 2:1. Use silt fences or other barriers where necessary to complement temporary erosion control and prevent sediment movement.

### ***Temporary Erosion Control***

Protect stockpile as specified in the design plan. In the absence of details in the plan use temporary seeding as soon as possible, but not more than 14 working days after formation of the stockpile. Mulching may be substituted for temporary seeding on stockpiles that will be used within 2 months. If stockpiles will not be used within 12 months, they should be stabilized by permanent vegetation to control erosion and weed growth.

### ***Spreading Topsoil***

Immediately prior to spreading topsoil, loosen the subgrade of the site to receive the topsoil by disking or scarifying to a depth of at least 2" to ensure bonding of the topsoil and subsoil.

Uniformly spread topsoil to a lightly compacted depth of 4" or greater. For long-term growth of vegetation without irrigation, minimum soil depth (subsoil and topsoil) should be 8" to 12" over loose sand or rock fragments, and 24" of soil depth is needed over bedrock. Established grades should be maintained according to the approved plan and should not be altered by adding topsoil.

Avoid spreading when either soil or subgrade is wet or frozen.

### **Construction Verification**

Check all components of topsoiling that occur on the construction site to ensure that specifications are being met for the components.

### **Common Problems**

*Consult with qualified design professional if any of the following occur:*

- Depth of surface being stripped is significantly different than anticipated.
- Topsoil appears to contain contaminants.
- Topsoil appears too compacted during spreading; may need to loosen by disking or scarifying.

### **Maintenance**

Inspect topsoiled areas frequently until vegetation is established.

Repair eroded or damaged areas and revegetate.

Repair sloughing on steep slopes—remove topsoil, roughen subgrade and respread topsoil. Consult with qualified design professional if drainage (wetness caused by seepage) or shallowness to bedrock (less than 24”) is involved.

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